

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary).

Sheet

of

		Complete if Known	
Application Number		09/830,457	
Filing Date		I.A. 10/27/1999	
First Named Inventor		Erez Braun	
Art Unit		1641	
Examiner Name		Ann Y. Lam	
Attorney Docket Number		201448-000341	

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No. ¹	U.S. Patent Document Number – Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1.	US-2002/0137070 A1	09/26/2002	Mirkin et al.	
	2.	US-2002/0137071 A1	09/26/2002	Mirkin et al.	
	3.	US-2002/0137072 A1	09/26/2002	Mirkin et al.	
	4.	US-2002/0146720 A1	10/10/2002	Mirkin et al.	
	5.	US-2002/0155462 A1	10/24/2002	Mirkin et al.	
	6.	US-2002/0160381 A1	10/31/2002	Mirkin et al.	
	7.	US-2002/0164605 A1	11/07/2002	Mirkin et al.	
	8.	US-2002/0182608 A1	12/05/2002	Connolly	
	9.	US-2003/0022169 A1	01/30/2003	Mirkin et al.	
	10.	US-2003/0059777 A1	03/27/2003	Mirkin et al.	
	11.	US-2003/0068622 A1	04/10/2003	Mirkin et al.	
	12.	US-2003/0087242 A1	05/08/2003	Mirkin et al.	
	13.	US-2003/0044805 A1	03/06/2003	Mirkin et al.	
	14.	US-2003/0049630 A1	03/13/2003	Mirkin et al.	
	15.	US-2003/0054358 A1	03/20/2003	Mirkin et al.	
	16.	US-2003/0180783 A1	09/25/2003	Mirkin et al.	
	17.	US-3,833,894	09/03/1974	Aviram et al.	
	18.	US-4,314,821	02/09/1982	Rice	
	19.	US-4,822,566	04/18/1989	Newman	
	20.	US-5,063,417	11/05/1991	Hopfield	
	21.	US-5,089,545	02/18/1992	Pol	
	22.	US-5,284,748	02/08/1994	Mroczkowski et al.	
	23.	US-5,312,527	05/17/1994	Mikkelsen et al.	
	24.	US-5,445,934	08/29/1995	Foder et al.	
	25.	US-5,561,071	10/01/1996	Hollenberg et al.	
	26.	US-5,563,424	10/08/1996	Yang et al.	
	27.	US-5,653,939	08/05/1997	Hollis et al.	
	28.	US-5,707,845	01/13/1998	Ueyama et al.	
	29.	US-5,739,308	04/14/1998	Kandimalla et al.	
	30.	US-5,770,369	06/23/1998	Meade et al.	
	31.	US-5,787,032	07/28/1998	Heller et al.	
	32.	US-5,787,332	07/28/1998	Black et al.	
	33.	US-5,824,473	10/20/1998	Meade et al.	
	34.	US-5,837,546	11/17/1998	Allen et al.	

2/17/05

FEB 11 2004

PTO/SB/08A (10-01)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

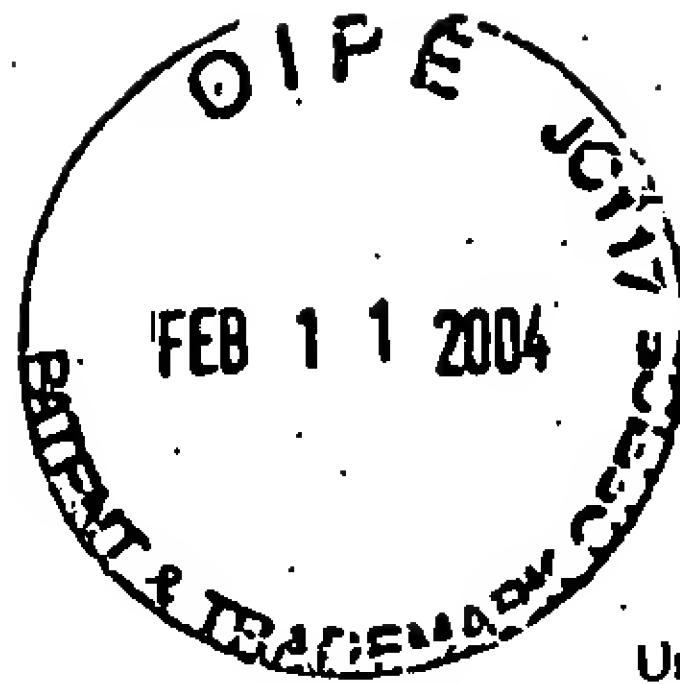
				<i>Complete if Known</i>
				Application Number 09/830,457
				Filing Date 1.A. 10/27/1999
				First Named Inventor Erez Braun
				Art Unit 1641
				Examiner Name Ann Y. Lam
Sheet		of		Attorney Docket Number 201448-000341

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No. ¹	U.S. Patent Document Number – Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	35.	US-5,858,659	01/12/1999	Sapolsky et al.	
	36.	US-5,874,046	02/23/1999	Megerle	
	37.	US-5,876,976	03/02/1999	Richards et al.	
	38.	US-5,891,630	04/06/1999	Eggers et al.	
	39.	US-5,914,505	06/22/1999	Hisada et al.	
	40.	US-5,946,550	08/31/1999	Papadimitrakopoulos	
	41.	US-6,051,380	04/18/2000	Sosnowski et al.	
	42.	US-6,060,023	05/09/2000	Maracas	
	43.	US-6,071,699	06/06/2000	Meade et al.	
	44.	US-6,093,370	07/25/2000	Yasuda et al.	
	45.	US-6,210,880 B1	04/03/2001	Lyamichev et al.	
	46.	US-6,391,558 B1	05/21/2002	Henkens et al.	
	47.	US-6,399,303 B1	06/04/2002	Connolly	
	48.	US-6,645,721 B2	11/11/2003	Mirkin et al.	
Examiner Signature	<i>Ann Y. Lam</i>			Date Considered	2/17/05

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at 222.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.



PTO/SB/08A (10-01)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

Sheet

of

		<i>Complete if Known</i>	
Application Number		09/830,457	
Filing Date		I.A. 10/27/1999	
First Named Inventor		Erez Braun	
Art Unit		1641	
Examiner Name		Ann Y. Lam	
Attorney Docket Number		201448-000341	

U.S. PATENT DOCUMENTS

Examiner Initials ¹	Cite No. ¹	U.S. Patent Document Number – Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

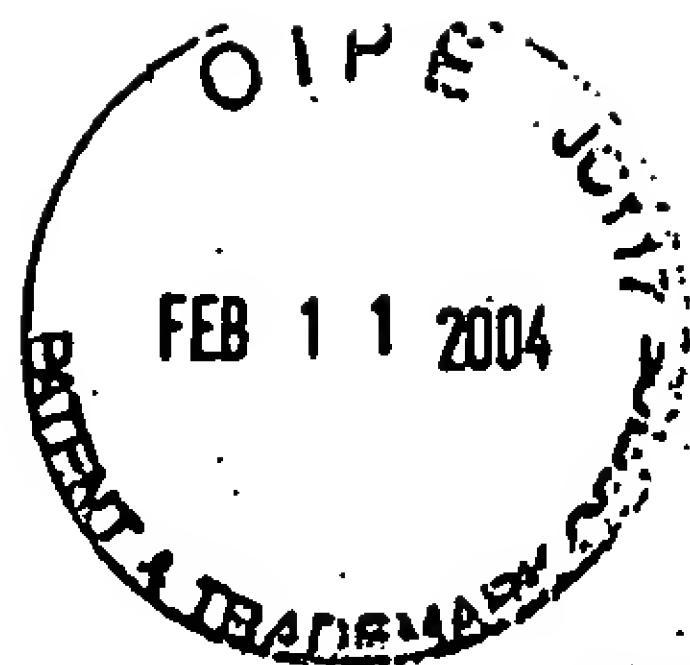
FOREIGN PATENT DOCUMENTS

Examiner Initials ¹	Cite No. ¹	Foreign Patent Document Kind Code ³ Country Code ⁴ Number ⁴ (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	49.	EP 0 364 208 A1	04/18/1990	Thorne, Smith, Astill Technologies, Inc.	
	50.	EP 0 444 840 A1	09/04/1991	Ciba Corning Diagnostics Corp.	
	51.	JP 04/148669	05/21/1992	Abstract – 04148669 A	
	52.	WO 00/25136	05/04/2000	Technion Research and Development Foundation Ltd.	
	53.	WO 90/05300	05/17/1990	Midwest Research Technologies, Inc.	
	54.	WO 93/25003	12/09/1993	Yale University	
	55.	WO 94/05045	03/03/1994	The Regents of the University of California	
	56.	WO 97/44651	11/27/1997	Australian Membrane and Biotechnology Research Institute	
	57.	WO 98/31839	07/23/1998	President and Fellows of Harvard College	
	58.	WO 98/53841	12/03/1998	The State of Oregon acting by and through the State Board of Higher Education on behalf of the University of Oregon	
	59.	WO 99/04440	01/28/1999	Technion Research and Development Foundation Ltd.	
	60.	WO 99/29711	06/17/1999	Nanogen, Inc.	
	61.	WO 99/35256	07/15/1999	Institut Pasteur	
	62.	WO 99/36573	07/22/1999	Schichman et al.	
	63.	WO 99/57550	11/11/1999	Technion Research and Development Foundation Ltd.	
	64.	WO 99/60165	11/25/1999	Connolly	
Examiner Signature		<i>Connolly</i>	Date Considered	2/17/05	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at 222.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.





FEB 11 2004

PTO/SB/08B (10-01)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet

of

		<i>Complete if Known</i>
Application Number		09/830,457
Filing Date		I.A. 10/27/1999
First Named Inventor		Erez Braun
Art Unit		1641
Examiner Name		Ann Y. Lam
Attorney Docket Number		201448-000341

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
	65.	Ackley et al., "DNA Technology for Optoelectronics," <u>IEEE</u> , (1998)	
	66.	Alivisatos et al., "Organization of 'Nanocrystal Molecules' Using DNA," <u>Nature</u> , 382:609-611 (1996)	
	67.	Averin et al., in Altshuler, eds., "Single Electronics: A Correlated Transfer of Single Electrons and Cooper Pairs in Systems of Small Tunnel Junctions," <u>Mesoscopic Phenomena in Solids</u> , New York, New York: Elsevier Science Publishing Company, Inc., 173-271 (1991)	
	68.	Barton, "Metal/Nucleic-Acid Interactions," in Bertini, eds., <u>Bioinorganic Chemistry</u> , Sausalito, California: University Science Books, pp. 455-503 (1994)	
	69.	Bensimon et al., "Alignment and Sensitive Detection of DNA by a Moving Interface," <u>Science</u> , 265:2096-2098 (1994)	
	70.	Bensimon et al., "Stretching DNA with a Receding Meniscus: Experiments and Models," <u>Physical Review Letters</u> , 74(23):4754-4757 (1995)	
	71.	Bertini et al., "Bioinorganic Chemistry," <u>University Science Books</u> , 455-503 (1994)	
	72.	Birrell et al., "Silver Enhanced Colloidal Gold as a Cell Surface Marker for Photoelectron Microscopy," <u>Journal of Histochemistry and Cytochemistry</u> , 34(3):339-345 (1986)	
	73.	Braun et al., "DNA-Templated Assembly and Electrode Attachment of a Conducting Silver Wire," <u>Nature</u> , 391:775-778 (1998)	
	74.	Burroughes et al., "Light-Emitting Diodes Based on Conjugated Polymers," <u>Nature</u> , 347:539-541 (1990)	
	75.	Chen et al., "Synthesis from DNA of a Molecule with the Connectivity of a Cube," <u>Nature</u> , 350:631-633 (1991)	
	76.	Coffer et al., "Dictation of the Shape of Mesoscale Semiconductor Nanoparticle Assemblies by Plasmid DNA," <u>Appl. Phys. Lett.</u> , 69(25):3851-3853 (1996)	
Examiner Signature			Date Considered 2/17/05

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² Applicant is to place a check mark here if English language Translation is attached.

FEB 11 2004
PATENT & TRADEMARK OFFICE

PTO/SB/08B (10-01)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO		<i>Complete if Known</i>	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary).</i>			
Sheet	of	Attorney Docket Number	201448-000341
OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS			
Examiner Initials	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
<i>R</i>	77.	Danscher et al., "Light Microscopic Visualization of Colloidal Gold on Resin-Embedded Tissue," <u>Journal of Histochemistry and Cytochemistry</u> , 31(12):1394-1398 (1983)	
	78.	Danscher, "Localization of Gold in Biological Tissue. A Photochemical Method for Light and Electronmicroscopy," <u>Histochem.</u> , 71:81-88 (1981)	
	79.	Demitras et al., "An Extension of the Role of O(2) of Cytosine Residues in the Binding of Metal Ions, Synthesis and Structure of an Unusual Polymeric Silver(I) Complex of 1-Methylcytosine," <u>J. Am. Chem. Soc.</u> , 99(8):2797-2798 (1977)	
	80.	Du et al., "Synthesis of a SNA Knot Containing Both Positive and Negative Nodes," <u>Journal of American Chemical Society</u> , 114(24):9652-9655 (1992)	
	81.	Eichhorn, "Complexes of Nucleosides and Nucleotides," in Eichhorn, ed., <u>Inorganic Biochemistry</u> , Vols. 1 and 2, New York, New York:American Elsevier Publishing Company, pp. 1191-1243 (1973)	
	82.	Fink et al., "Electrical Conduction Through DNA Molecules," <u>Nature</u> , 398:407-410 (1999)	
	83.	Goffeau, "Molecular Fish on Chips," <u>Nature</u> , 385:202-203 (1997)	
	84.	Grabar et al., "Kinetic Control of Interparticle Spacing in Au Colloid-Based Surfaces: Rational Nanometer-Scale Architecture," <u>J. Am. Chem. Soc.</u> , 118:1148-1153 (1996)	
	85.	Hall et al., "Oxidative DNA Damage Through Long-Range Electron Transfer," <u>Nature</u> , 382:731-735 (1996)	
	86.	Holgate et al., "Immunogold - Silver Staining," <u>Journal of Histochemistry and Cytochemistry</u> , 31(7):938-944 (1983)	
	87.	Kallenbach et al., "An Immobile Nucleic Acid Junction Constructed from Oligonucleotides," <u>Nature</u> , 305:829-831 (1983)	
	88.	Kastner et al., "The Single Electron Transistor," <u>Reviews of Modern Physics</u> , 64(3):849-858 (1992)	
	89.	Klein et al., "An Approach to Electrical Studies of Single Nanocrystals," <u>Appl. Phys. Lett.</u> , 68(18):2574-2576 (1996)	
	90.	Kouwenhoven et al., "Introduction to Mesoscopic Electron Transport," in Sohn, eds., <u>Mesoscopic Electron Transport</u> , The Netherlands:Kluwer Academic Publishers, pp. 1-44 (1997)	
Examiner Signature	<i>An Y. Lam</i>		Date Considered 2/18/05

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² Applicant is to place a check mark here if English language Translation is attached.



FEB 11 2004

PTO/SB/08B (10-01)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Complete if Known

Application Number	09/830,457
Filing Date	1.A. 10/27/1999
First Named Inventor	Erez Braun
An Unit	1641
Examiner Name	Ann Y. Lam
Sheet	Attorney Docket Number
	201448-000341

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials ¹	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
<i>EL</i>	91.	Langer et al., "Quantum Transport in a Multiwalled Carbon Nanotube," <u>Physical Review Letters</u> , 76(3):479-482 (1996)	
	92.	Meirav et al., "Single Electron Phenomena in Semiconductors," <u>Semiconductor Science Technology</u> 11:255-284 (1996)	
	93.	Mirkin et al., "A DNA-Based Method for Rationally Assembling Nanoparticles into Macroscopic Materials," <u>Nature</u> , 382:607-609 (1996)	
	94.	Mueller et al., "Design and Synthesis of a Knot From Single-Stranded DNA," <u>Journal of American Chemical Society</u> , 113(16):6306-6308 (1991)	
	95.	Porath et al., "Single Electron Tunneling and Level Spectroscopy of Isolated C ₆₀ Molecules," <u>J. Appl. Phys.</u> , 81(5):2241-2244 (1997)	
	96.	Roberts et al., "A New Procedure for the Detection of Gold on Animal Tissue," <u>Proceedings of the Section of Sciences, N. V. Noord-Hollandsche Uitgeversmaatschappij</u> , Amsterdam, 38:540-544 (1935)	
	97.	Sato et al., "Single Electron Transistor Using a Molecularly Linked Gold Colloidal Particle Chain," <u>J. Appl. Phys.</u> , 82(2):696-701 (1997)	
	98.	Scopsi et al., "Colloidal Gold Probes in Immunocytochemistry. An Optimization of Their Application in Light Microscopy by Use of Silver Intensification Procedures," <u>Med. Biol.</u> , 64:139-145 (1986)	
	99.	Scopsi et al., "Increased Sensitivity in Immunocytochemistry. Effects of Double Application of Antibodies and of Silver Intensification on Immunogold and Peroxidase-Antiperoxidase Staining Techniques," <u>Histochemistry</u> , 82:321-329 (1985)	
	100.	Seeman et al., "Synthetic DNA Knots and Catenanes," <u>New Journal of Chemistry</u> , 17(10):739-755; 1993.	
	101.	Size, <u>Physics of Semiconductor Devices</u> , 2 nd Ed., 349:490-495 (date unknown)	
<i>AS</i>	102.	Springall et al., "The Potential of the Immunogold-Silver Staining Method for Paraffin Sections," <u>Histochemistry</u> , 81:603-608 (1984)	
Examiner Signature	<i>Ann Y. Lam</i>		Date Considered 2/17/05

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² Applicant is to place a check mark here if English language Translation is attached.



PTO/SB/08B (10-01)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>				Complete if Known	
				Application Number	09/830,457
				Filing Date	I.A. 10/27/1999
				First Named Inventor	Erez Braun
				Art Unit	1641
				Examiner Name	Ann Y. Lam
Sheet		of		Attorney Docket Number	201448-000341
OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS					
Examiner Initials	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.			T ²
<i>JP</i>	103.	Teasdale et al., "Identification of Oestrogen Receptors in Cells of Paraffin-Processed Breast Cancers by IGSS," <u>Histochemistry</u> , 87:185-187 (1987)			
<i>J</i>	104.	Wirtz, "Direct Measurement of the Transport Properties of a Single DNA Molecule," <u>Physical Review Letters</u> , 75(12):2436-2439 (1995)			
<i>J</i>	105.	Zimmermann et al., "DNA Stretching on Functionalized Gold Surfaces," <u>Nucleic Acids Research</u> , 22(3):492-497 (1994)			
Examiner Signature	<i>Ann Y. Lam</i>			Date Considered	<i>2/17/05</i>

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² Applicant is to place a check mark here if English language Translation is attached.